California Cooperative
Snow Surveys
Bulletin 120-91

Water Conditions in California

Report 1 February 1, 1991

DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

STATE OF CALIFORNIA

Department of Water Resources

Division of Flood Management

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COOPERATING AGENCIES

Public Agencies

Buena Vista Water Storage District
Central California Irrigation District
East Bay Municipal Utility District
Friant Water Users Association
Kaweah Delta Water Conservation District
Kern Delta Water District
Kings River Conservation District
Lower Tule River Irrigation District
Merced Irrigation District
Modesto Irrigation District
Nevada Irrigation District
North Kern Water Storage District
Northern California Power Agency
Oakdale Irrigation District
Omochumne-Hartnell Water District
Oroville-Wyandotte Irrigation District
Placer County Water Agency
Sacramento Municipal Utility District
South San Joaquin Irrigation District
Tri-Dam Project
Tulare Lake Basin Water Storage District
Turlock Irrigation District
Yuba County Water Agency

Private Organizations

J.G. Boswell Company
Kaweah River Association
Kings River Water Association
St. Johns River Association
Tule River Association
U.S. Tungsten Corporation
State Water Contractors

Public Utilities

Pacific Gas and Electric Company
Southern California Edison Company
Sierra Pacific Power Company

Municipalities

City of Bakersfield
Water Department
City of Los Angeles
Department of Water and Power
City and County of San Francisco
Hetch Hetchy Water and Power

State Agencies

California Department of Forestry
& Fire Protection
California Department of Water Resources

Federal Agencies

U.S. Department of Agriculture
Forest Service(14 National Forests)
Pacific Southwest Forest and Range
Experiment Station
Soil Conservation Service
U.S. Department of Commerce
National Weather Service
U.S. Department of Interior
Bureau of Reclamation
Geological Survey, Water Resources
Division
National Park Service(3 National Parks)
U.S. Department of Army
Corps of Engineers

Other Cooperative Programs

Nevada Cooperative Snow Surveys
Oregon Cooperative Snow Surveys

SUMMARY OF WATER CONDITIONS

February 1, 1991

With slightly more than half of the rainy season over, barring an unlikely turn around in weather patterns, it is evident that water year 1990-91 will be the fifth year of the drought. Water supply conditions are worse now than they were at this time in 1977. Precipitation, runoff, and reservoir storage are all below 1977 levels.

FORECASTS of both April through July and water year runoff reflect the unusually dry conditions. They are extremely low, about one third of average overall.

SNOWPACK figures are extremely low in all snow zones. The regions with the highest snowpack, the Central Valley and the North Lahontan areas, have only a fifth of normal. The usually wet North Coast had only 15 percent of its usual snowpack.

PRECIPITATION statewide is about a quarter of average. The wettest region is the Colorado Desert area, but it contributes little to California's water supply. The San Francisco Bay area and the Central Coast remain far below normal. Seasonal rainfall in the important water producing Sacramento and San Joaquin basins is only 20 to 25 percent of average to date.

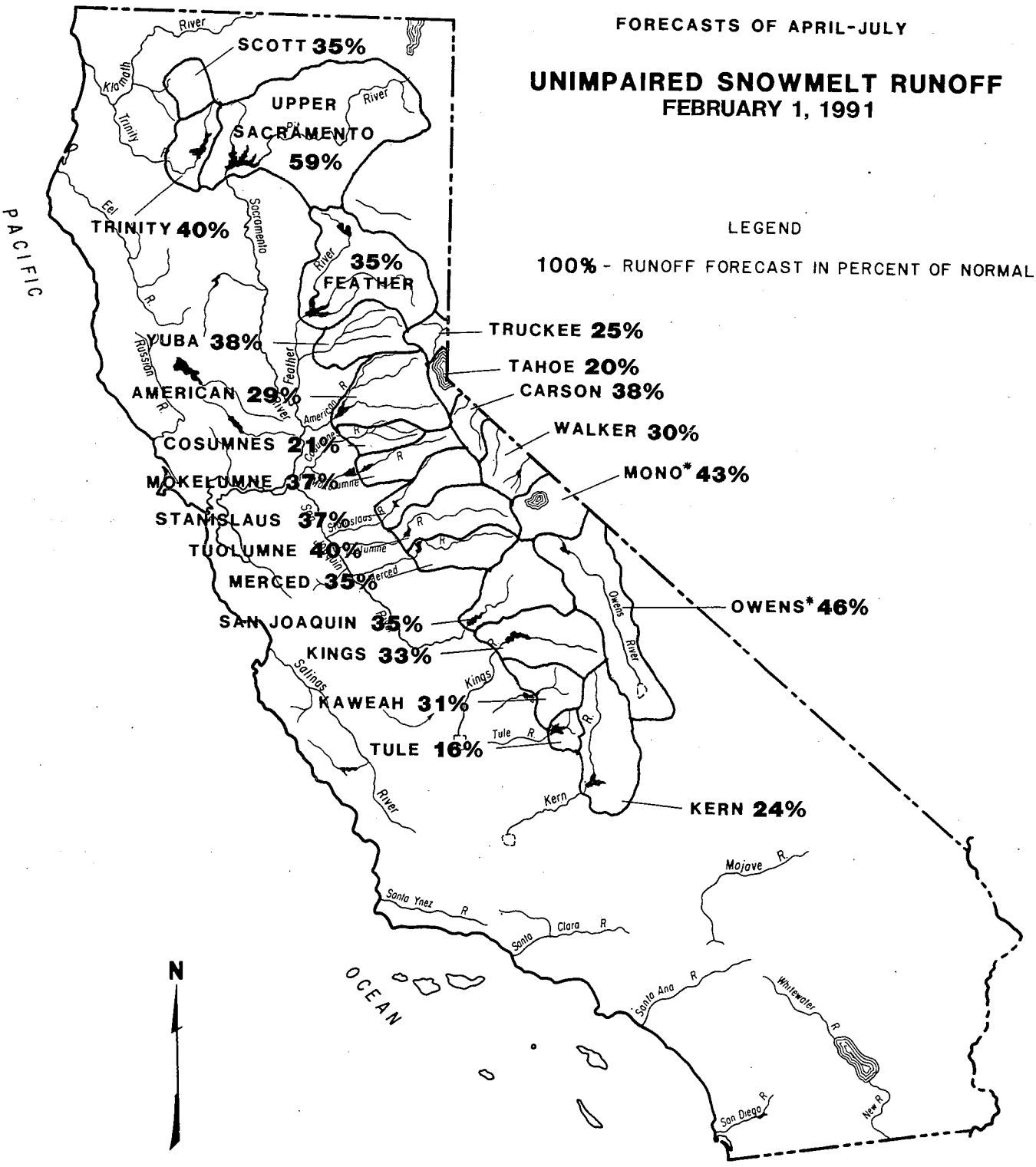
RUNOFF amounts are extremely low throughout the State. Greatest discharge has occurred in the Upper Sacramento Basin. Virtually no runoff has occurred in the San Francisco Bay and Central Coast regions.

RESERVOIR STORAGE statewide is half of average. Storage on February 1 was 50 percent of average this year compared to 55 percent at this time in 1977. The most critical storage conditions continue to be on the Central Coast where reservoirs are holding only about 15 percent of their usual amounts of water.

SUMMARY OF WATER CONDITIONS

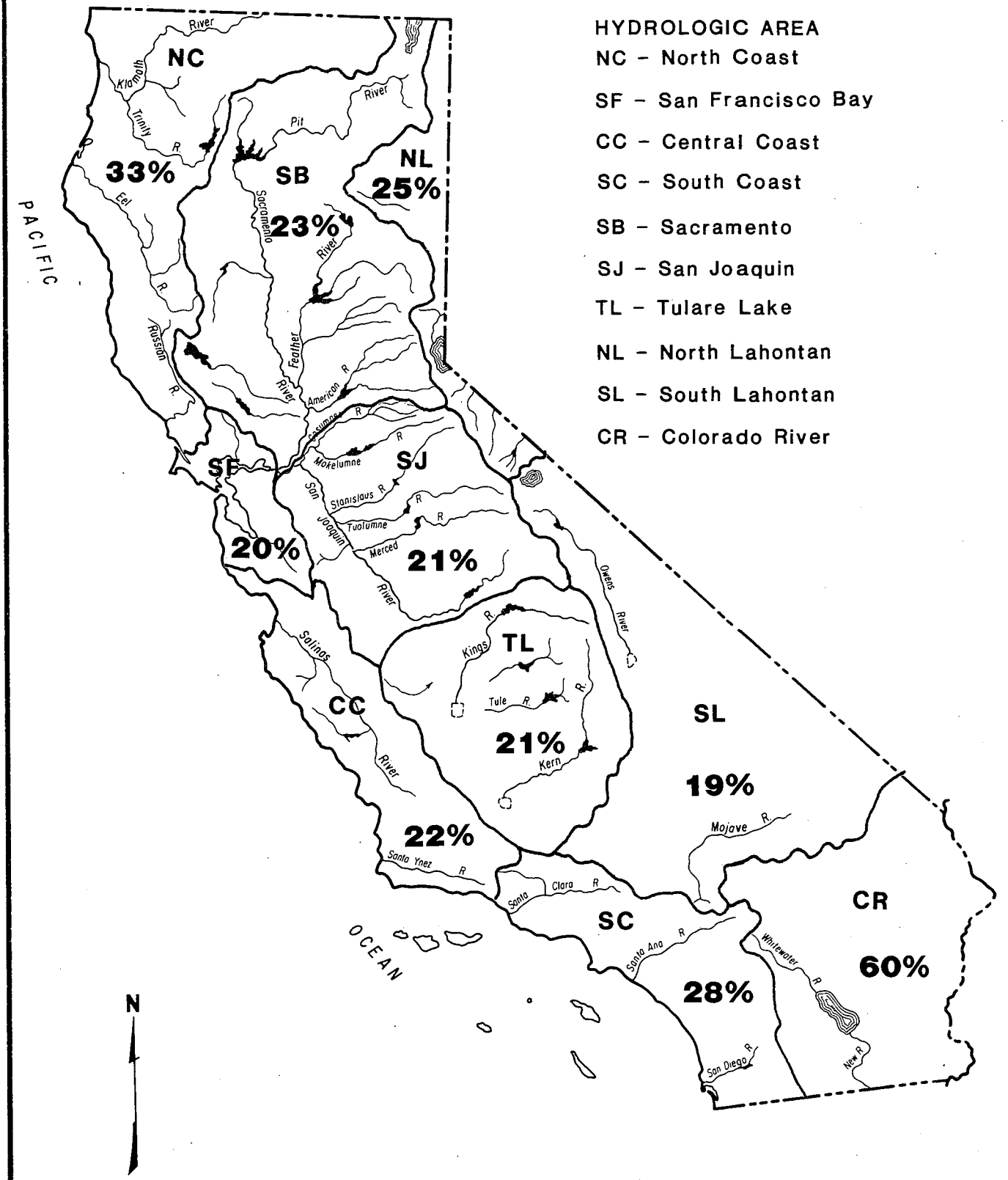
IN PERCENT OF AVERAGE

HYDROGRAPHIC AREA	PRECIPITATION OCTOBER 1 TO DATE	SNOW WATER CONTENT	RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	RUNOFF APR-JULY FORECAST	WATER YEAR FORECAST
NORTH COAST	35	15	55	10	40	30
SAN FRANCISCO BAY	20	--	60	0	--	--
CENTRAL COAST	20	--	15	0	--	--
SOUTH COAST	30	--	95	15	--	--
SACRAMENTO BASIN	25	20	50	20	40	35
SAN JOAQUIN BASIN	20	20	45	5	35	30
TULARE LAKE BASIN	30	20	25	20	30	30
NORTH LAHONTAN	25	20	20	30	30	30
SOUTH LAHONTAN	20	10	80	40	45	40
COLORADO RIVER	60	--	--	--	--	--
STATEWIDE	25	20	50	15	35	30



*FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES FOR THE PERIOD OF APRIL THROUGH SEPTEMBER

SEASONAL PRECIPITATION IN PERCENT OF AVERAGE TO DATE
OCTOBER 1, 1990 TO FEBRUARY 1, 1991



CALIFORNIA COOPERATIVE SNOW SURVEYS PROGRAM

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS FEBRUARY 1, 1991

DRAINAGE BASIN AND WATERSHED	April through July Unimpaired Runoff in 1,000 Acre-Feet					
	HISTORICAL			FORECASTS		
	50 Year Average	Maximum of Record	Minimum of Record	April-July Forecast	Percent of Average	80% Prob. Range
SACRAMENTO RIVER BASIN						
Upper Sacramento River						
Sacramento River at Shasta Lake (2)	304	702	39	140	46	
McCloud River at Shasta Lake(2)	430	850	185	280	65	
Pit River at Shasta Lake(2)	1,075	1,796	480	660	61	
Total inflow to Shasta Lake(1)	1,880	3,189	726	1,100	59	750-2,000
Sacramento River above Bend Bridge, near Red Bluff	2,569	4,674	943	1,350	53	960-2,800
Feather River						
Feather River at Lake Almanor near Pratville (2)	345	675	120	160	46	
North Fork at Pulga (2)	1,080	2,416	243	400	37	
Middle Fork near Clio (3)	86	518	4	10	12	
South Fork at Ponderosa Dam (2)	116	267	13	40	34	
Total inflow to Oroville Reservoir	1,971	4,676	392	680	35	390-1,700
Yuba River						
North Yuba below Goodyears Bar (2)	298	647	51	120	40	
Inflow to Jackson Mdws and Bowman Reservoirs (2)	115	236	25	50	43	
South Yuba at Langs Crossing (2)	232	481	57	105	45	
Yuba River at Smartville	1,107	2,424	200	420	38	210-1,100
American River						
North Fork at North Fork Dam (2)	274	716	43	75	27	
Middle Fork near Auburn (2)	548	1,406	100	170	31	
Silver Creek below Camino Diversion Dam (2)	178	386	37	65	37	
Total inflow to Folsom Reservoir	1,366	3,074	229	400	29	230-1,300
Sacramento River at Sacramento						
SAN JOAQUIN RIVER BASIN						
Cosumnes River at Michigan Bar	140	363	8	30	21	7-120
Mokelumne River						
North Fork near West Point (4)	437	829	104	180	41	
Total inflow to Pardee Reservoir	490	1,065	102	180	37	90-450
Stanislaus River						
Middle Fork below Beardsley Dam (2)	352	702	64	150	43	
North Fork inflow to McKay's Point Dam	224	503	34	85	38	
Total inflow to Melones Reservoir	753	1,710	116	280	37	110-700
Tuolumne River						
Cherry Creek and Eleanor Creek near Hetch Hetchy (2)	322	727	97	135	42	
Tuolumne River near Hetch Hetchy (2)	618	1,392	153	280	45	
Total inflow to Don Pedro Reservoir	1,254	2,682	301	500	40	250-1,200
Merced River						
Merced River at Pohono Bridge (2)	371	888	80	150	40	
Total inflow to Exchequer Reservoir	654	1,587	123	230	35	120-550
San Joaquin River						
San Joaquin River at Mammoth Pool (2)	1,014	2,279	235	400	39	
Big Creek below Huntington Lake (2)	95	264	11	25	26	
South Fork near Florence Lake (2)	202	511	58	90	45	
Total inflow to Millerton Lake	1,296	3,355	262	450	35	250-1,100
San Joaquin River near Vernalis						
TULARE LAKE BASIN						
Kings River						
North Fork Kings River near Cliff Camp (2)	243	565	50	85	35	
Total inflow to Pine Flat Reservoir	1,266	3,114	273	420	33	260-1,100
Kaweah River at Terminus Reservoir	303	814	61	95	31	60-300
Tule River at Success Reservoir	70	256	2	11	16	2-60
Kern River						
Kern River near Kernville (2)	389	1,203	83	110	28	
Total inflow to Isabella Reservoir	492	1,657	84	120	24	80-450

(1) All 50-year averages are based on data for water years 1936-1985 except:
(2) 45-year average based on years 1936-80. (4) 36-year average based on years 1936-71.
(3) 44-year average based on years 1936-79. (5) See inside back cover for definition of unimpaired runoff and 80 percent probability ranges.

FORECASTS OF WATER YEAR UNIMPAIRED RUNOFF FOR CENTRAL VALLEY STREAMS FEBRUARY 1, 1991

Water Year October through September Unimpaired Runoff in 1,000's Acre-Feet												
HISTORICAL			*	DISTRIBUTION							FORECASTS	
50 Year Average	Maximum of Record	Minimum of Record	October through January	February	March	April	May	June	July	August and September	Water Year Forecast	Percent of Average
859	1,964	165										
1,286	2,353	577										
3,169	5,150	1,484										
6,090	10,796	2,479	790	280	470	400	300	220	180	320	2,960 (2,350-4,700)	49
8,856	17,180	3,294	950	400	600	450	380	300	220	380	3,680 (2,930-6,470)	42
786	1,269	366										
2,446	4,400	666										
219	637	24										
292	562	32										
4,754	9,492	994	260	150	330	300	200	100	80	120	1,540 (1,030-3,140)	32
565	1,056	102										
174	292	30										
357	565	98										
2,460	4,926	369	70	80	180	200	150	50	20	20	770 (410-1,690)	31
612	1,234	66										
1,066	2,575	144										
314	705	59										
2,837	6,381	349	30	70	150	200	150	45	5	10	660 (390-1,960)	23
												35
407	1,253	20	2	10	23	20	7	2	1	0	65 (15-260)	16
626	1,009	197										
776	1,800	129	8	17	45	80	80	19	1	0	250 (130-620)	32
483	929	88										
1,198	2,952	155	11	19	65	120	120	30	10	5	380 (150-930)	32
461	1,147	123										
775	1,661	258										
1,951	4,430	383	15	40	110	170	220	100	10	5	670 (370-1,600)	34
460	1,020	92										
1,023	2,859	150	10	15	50	80	100	40	10	5	310 (160-730)	30
1,337	2,964	308										
112	298	14										
248	653	71										
1,861	4,642	362	30	25	75	130	190	110	20	20	600 (350-1,420)	32
												32
282	607	58										
1,745	4,294	383	40	25	70	120	180	100	20	20	575 (380-1,440)	33
468	1,402	92	18	7	20	35	40	15	5	5	145 (95-420)	31
159	615	16	4	4	8	6	4	1	0	0	27 (10-130)	17
575	1,577	163										
749	2,309	175	33	17	25	40	50	20	10	15	210	28

* Unimpaired runoff to date e Estimated
Monthly distributions of runoff forecasts are estimated based on comparisons with previous water years

FORECASTS OF APRIL-JULY UNIMPAIRED RUNOFF FOR SELECTED CALIFORNIA STREAMS

FEBRUARY 1, 1991

DRAINAGE BASIN AND WATERSHED	April through July Unimpaired Runoff in 1,000 Acre-Feet				
	HISTORICAL			FORECASTS	
	50 Year Average(1)	Maximum of Record	Minimum of Record	April-July Forecast	Percent of Average
NORTH COAST AREA					
Trinity River at Lewiston	676	1,593	80	270	40
Scott River at Ft. Jones	200	*	*	70	35
Upper Klamath Lake(1)(2)(5)	521	1,151	177	220	42
LAHONTAN AREA					
Truckee River, Lake Tahoe to Farad accretion	278	713	58	70	25
Lake Tahoe Rise in feet (assuming gates closed)	1.5	3.75	0.23	0.3	20
East Carson River near Gardnerville	195	407	43	75	38
West Carson River at Woodfords	55	131	12	40	73
East Walker River near Bridgeport	68	209	7	12	18
West Walker River near Coleville	154	330	35	60	39
Owens River(1)(3)	310	728	131	141	45

(1)Forecast period of April-September

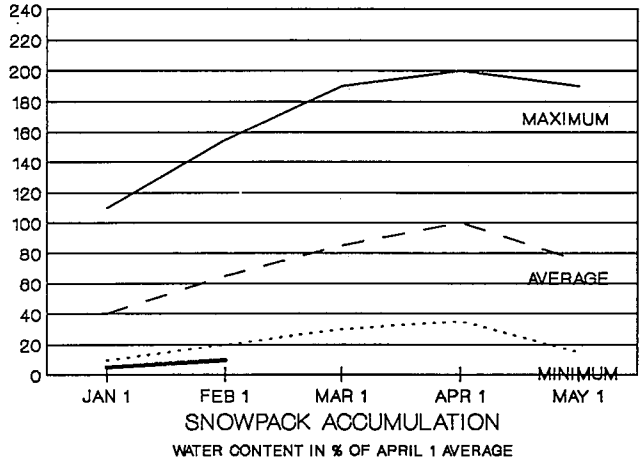
(2)Forecast by U.S. Soil Conservation Service, Portland, Or.

(3)Forecast by Dept. of Water and Power, City of Los Angeles

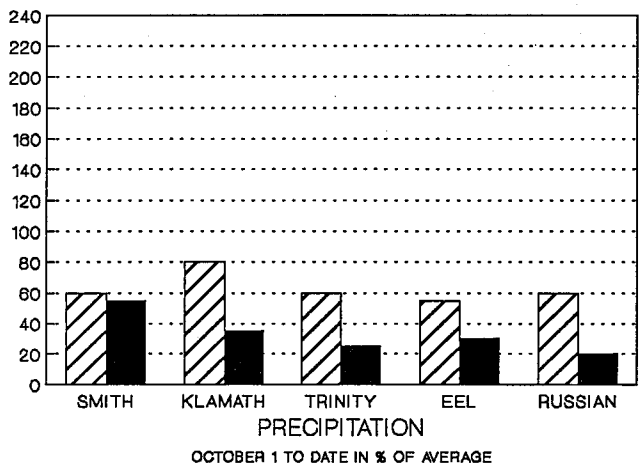
(4)Inside back cover for definition of unimpaired runoff.

(5)Average period of 25 years

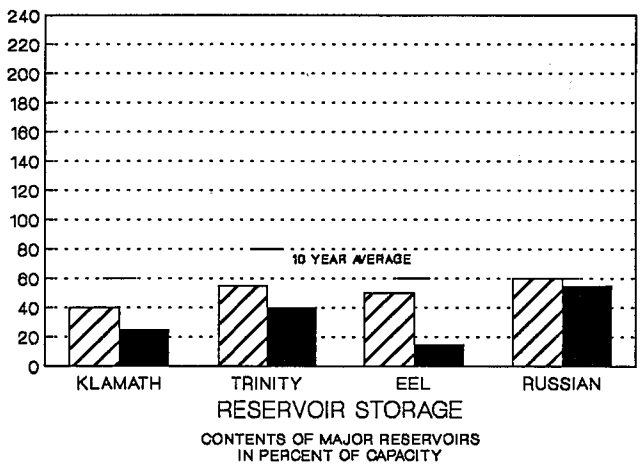
NORTH COAST AREA



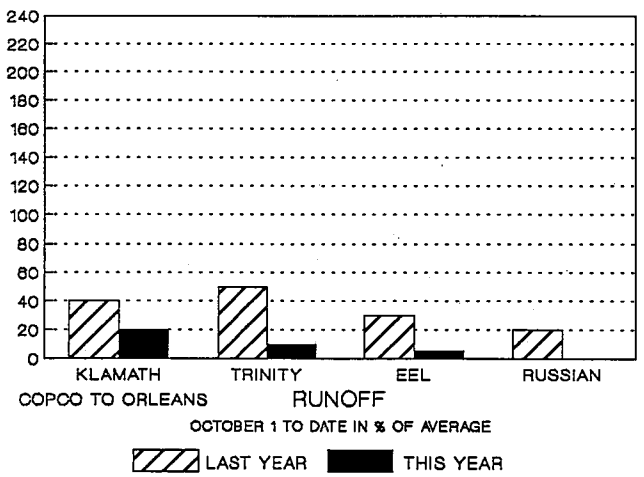
SNOWPACK - First of the month measurements made at 12 snow courses indicate an area wide snow water content of 3.2 inches. This is 15 percent of the average for this date and 10 percent of the seasonal (April 1) average. Last year at this time the pack was holding 8.1 inches of water



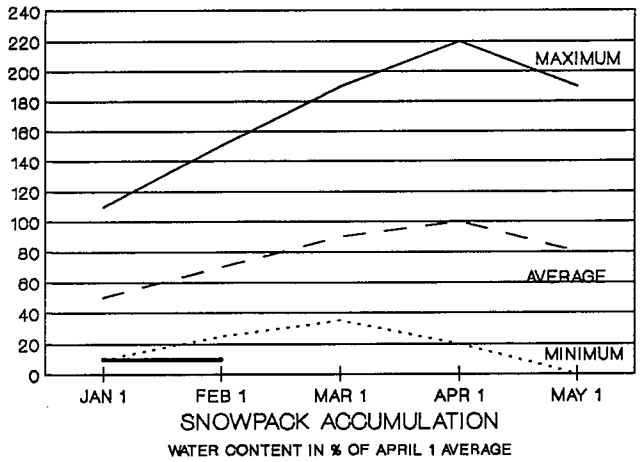
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 33 percent of normal. Precipitation last month was about 30 percent of the monthly average. Seasonal precipitation at this time last year stood at 63 percent of normal.



RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 1.2 million acre-feet which is 55 percent of average. About 38 percent of available capacity was being used. Storage in these reservoirs at this time last year was 76 percent of average.

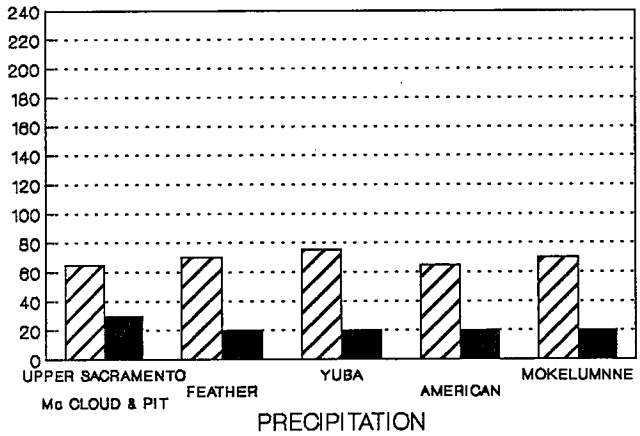


RUNOFF - Seasonal runoff of streams draining the area totaled 507 thousand acre-feet which is 9 percent of average for this period. Last year, runoff for the same period was 33 percent of average.



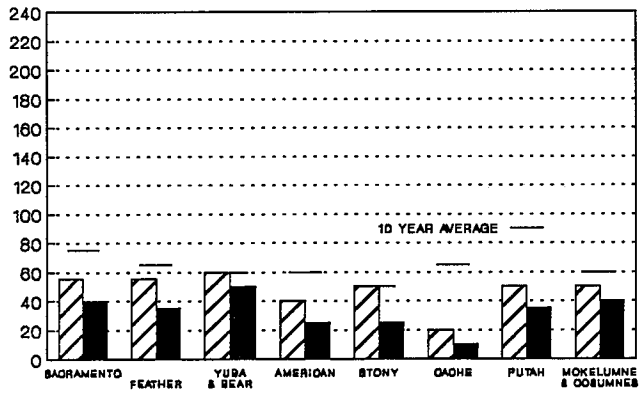
SNOWPACK ACCUMULATION

WATER CONTENT IN % OF APRIL 1 AVERAGE



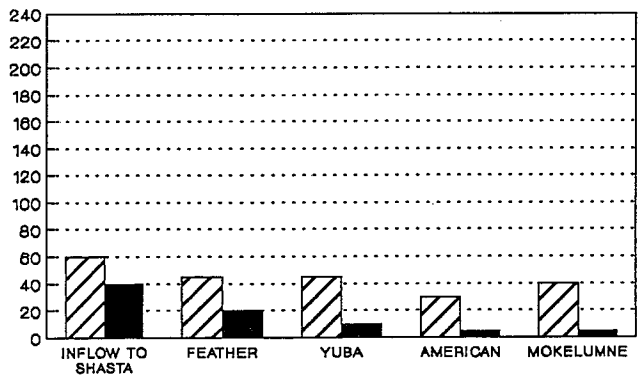
PRECIPITATION

OCTOBER 1 TO DATE IN % OF AVERAGE



RESERVOIR STORAGE

CONTENTS OF MAJOR RESERVOIRS IN PERCENT OF CAPACITY



RUNOFF

OCTOBER 1 TO DATE IN % OF AVERAGE

LAST YEAR THIS YEAR

SACRAMENTO BASIN

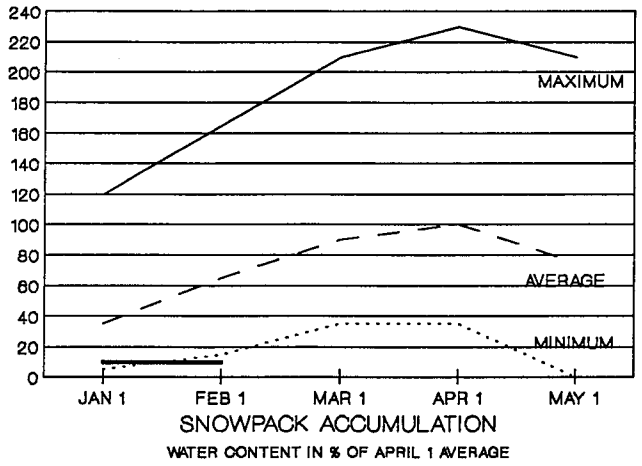
SNOWPACK - First of the month measurements made at 74 snow course indicate a basin wide snow water equivalent of 3.6 inches. This is 19 percent of the average for this date and 12 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 9.5 inches of water.

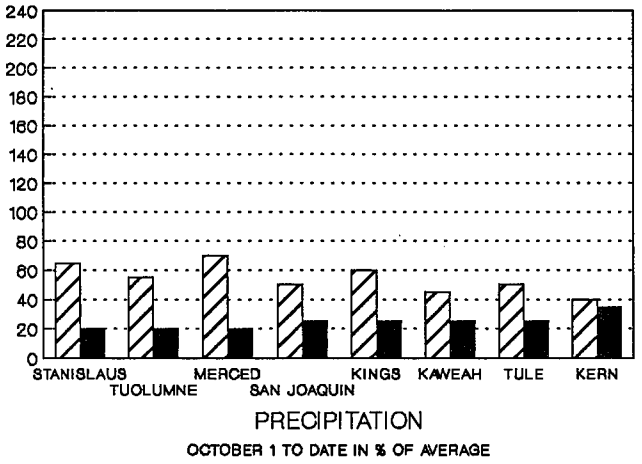
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the Sacramento Basin was 23 percent of average. Precipitation last month was only 12 percent of the monthly average. Seasonal precipitation at this time last year stood at 67 percent of normal.

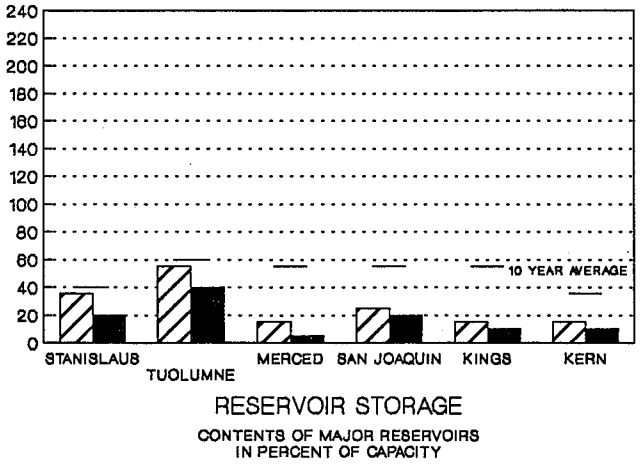
RESERVOIR STORAGE - First of the month storage in 43 reservoirs was 5.6 million acre-feet which is 52 percent of average. About 35 percent of available capacity was being used. Storage in these reservoirs was about 77 percent of average at this time last year.

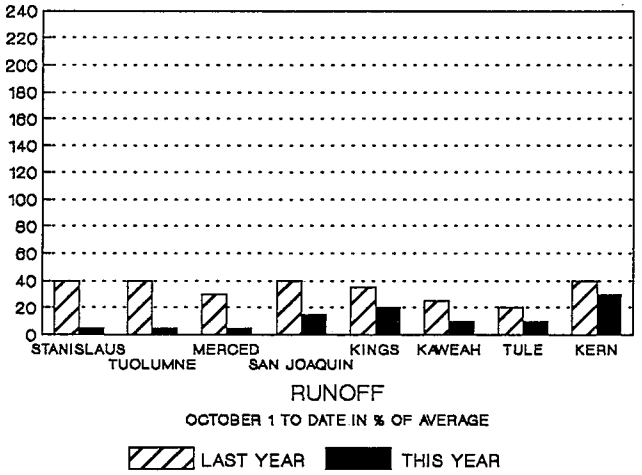
RUNOFF - Seasonal runoff from streams draining into the basin totaled 1.3 million acre-feet which is 22 percent of average for this period. Last year, runoff for the same period was 46 percent of average.

The Sacramento River Index for the year is forecast at 6.7 million acre-feet assuming median conditions for the remainder of the year. This classifies the year as "critical" in the Sacramento-San Joaquin Delta according to the State Water Resources Control Board's Decision 1485. The SRI at this time last year was forecasted to be 10.8 million acre-feet.









SAN JOAQUIN AND TULARE LAKE BASINS

SNOWPACK - First of the month measurements made at 64 San Joaquin Basin snow course indicate a basin wide snow water equivalent of 4.2 inches which is 19 percent of average for this date and 12 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 9.8 inches of water.

At the same time, 43 Tulare Lake Basin courses indicated a basin wide snow water equivalent of 2.8 inches which is 18 percent of the average for this date and 11 percent of the seasonal average. Last year at this time, the Basin was holding 6.9 inches of water.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin Basin was 21 percent of normal. Precipitation last month was 10 percent of the monthly average. Seasonal precipitation at this time last year stood at 62 percent of normal.

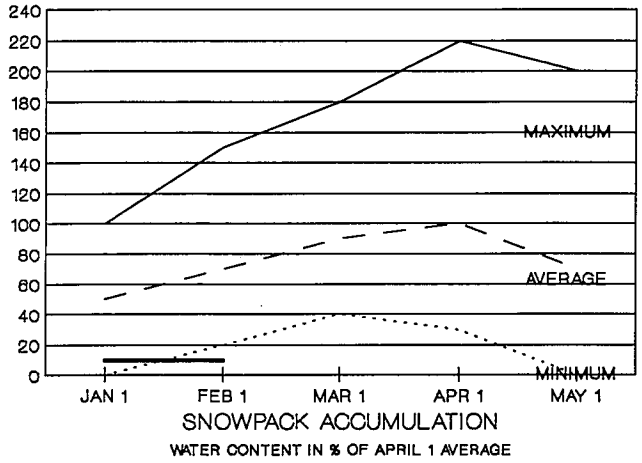
Seasonal precipitation on the Tulare Lake Basin was 29 percent of normal. Precipitation last month was also 29 percent of the monthly average. Seasonal precipitation at this time last year stood at 50 percent of normal.

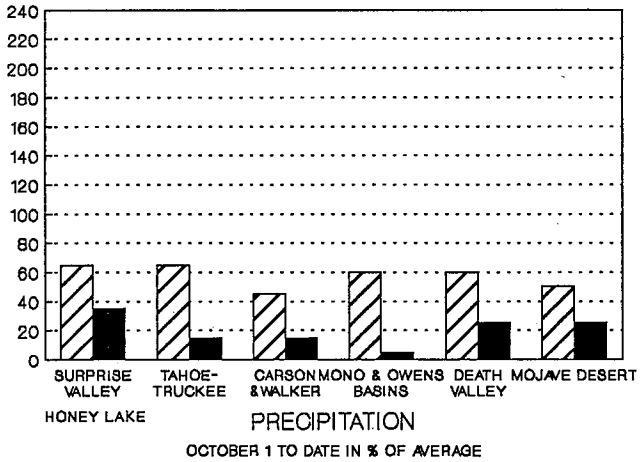
RESERVOIR STORAGE - First of the month storage in 33 San Joaquin Basin reservoirs was 3.0 million acre-feet which is 45 percent of average. About 27 percent of available capacity was being used. Storage in these reservoirs at this time last year was 75 percent of average.

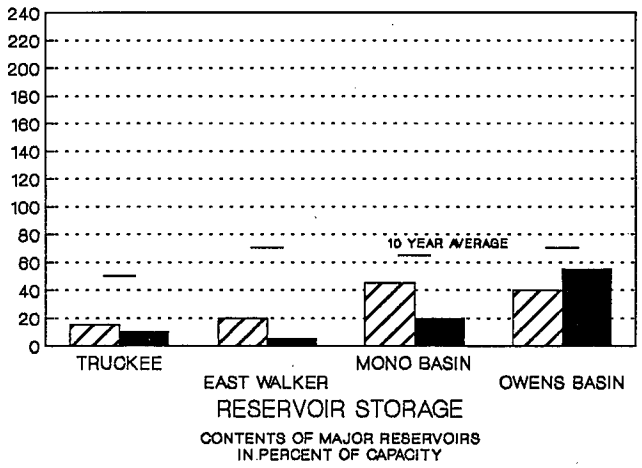
First of the month storage in 6 Tulare Lake Basin reservoirs was 183 thousand acre-feet which is 24 percent of average. About 9 percent of available capacity was being used. Storage in these reservoirs at this time last year was 37 percent of average.

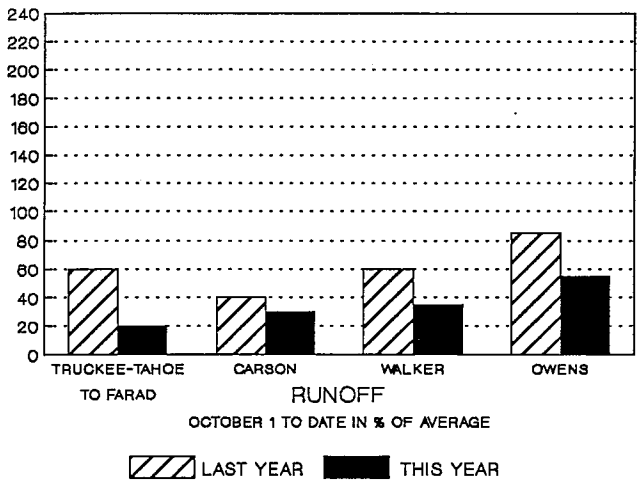
RUNOFF - Seasonal runoff of streams draining into the San Joaquin Basin totaled 76 thousand acre-feet which is 7 percent of average for this period. Last year, runoff for this same period was 36 percent of average.

Seasonal runoff of streams draining into the Tulare Lake Basin totaled 87 thousand acre-feet which is 21 percent of average for this period. Last year, runoff for this same period was 33 percent of average.









NORTH AND SOUTH LAHONTAN AREA

SNOWPACK - First of the month measurements made at 14 North Lahontan snow courses indicate an area wide snow water equivalent of 2.5 inches which is 18 percent for this date and 12 percent of the seasonal (April 1) average. Last year at this time, the pack was holding 7.5 inches of water.

At the same time, 23 South Lahontan courses indicated an area wide snow water equivalent of 1.8 inches which is 11 percent of the average for this date and 7 percent of the seasonal average. Last year at this time, the pack was holding 7.0 inches of water.

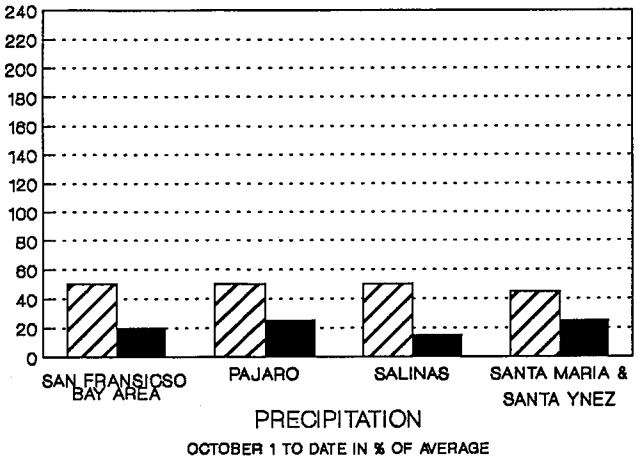
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) over the North Lahontan area was 25 percent of normal. Precipitation last month was just 16 percent of the monthly average. Seasonal precipitation at this time last year stood at 54 percent of normal.

Seasonal precipitation over the South Lahontan area was 19 percent of normal. Last month's precipitation was only 17 percent of the monthly average. Seasonal precipitation at this time last year stood at 51 percent of normal.

RESERVOIR STORAGE - First of the month storage in 5 North Lahontan reservoirs was 108 thousand acre-feet which is 18 percent of average. About 10 percent of available capacity was being used. Storage in these reservoirs at this time last year was 26 percent of average. Lake Tahoe was 1.3 feet below its natural rim on February 1.

First of the month storage in 8 South Lahontan reservoirs was 225 thousand acre-feet which is 79 percent of average. About 56 percent of available capacity was being used. Storage in these reservoirs at this time last year was 68 percent of average.

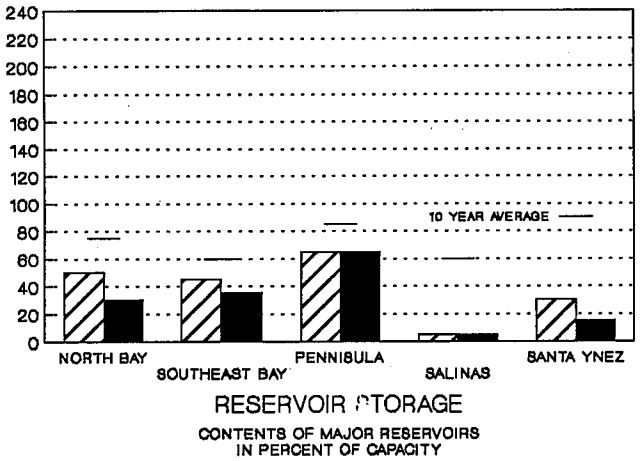
RUNOFF - Seasonal runoff of streams draining the North Lahontan area totaled 43 thousand acre-feet which is 28 percent of average for this period. Last year, runoff for this same period was 53 percent of average.



SAN FRANCISCO AND CENTRAL COAST AREAS

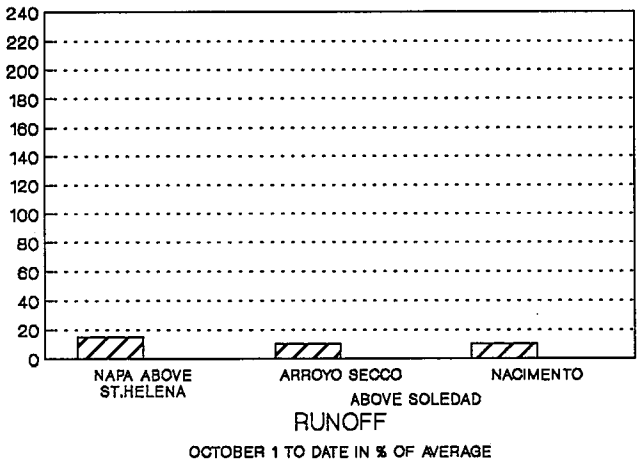
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 20 percent of normal. Precipitation last month was a scant 10 percent of the monthly average. Seasonal precipitation at this time last year stood at 52 percent of normal.

Seasonal precipitation on the Central Coast area averaged 21 percent of normal. Precipitation last month was also 22 percent of the monthly average. Seasonal precipitation at this time last year was 49 percent of average.



RESERVOIR STORAGE - First of the month storage in 18 major Bay area reservoirs was 273 thousand acre-feet which is 60 percent of average. About 39 percent of available capacity was being used. Storage in these reservoirs at this time last year was 75 percent of average.

First of the month storage in 6 major Central Coast reservoirs was 84 thousand acre-feet which is only 14 percent of average. About 9 percent of available capacity was being used. Storage in these reservoirs at this time last year was 20 percent of average.



RUNOFF - Seasonal runoff of streams draining the San Francisco Bay area totaled 0.4 thousand acre-feet which is only 1 percent of average for this period. Last year, runoff for this same period was 16 percent of average.

Seasonal runoff of selected Central Coast streams totaled 0.5 thousand acre-feet which is less than 1 percent of average for this period. Last year, runoff for this same period was 9 percent of average.

LAST YEAR THIS YEAR

SOUTH COAST AND COLORADO RIVER AREAS

PRECIPITATION - October through January (seasonal) precipitation on the South Coast area was 28 percent of normal. January precipitation was 46 percent of the monthly average. Seasonal precipitation in the Colorado Desert area was 60 percent of normal. January precipitation was 161 percent of the monthly average.

RESERVOIR STORAGE - February 1 storage in 29 major South Coast area reservoirs was 1.1 million acre-feet or 95 percent of average. About 57 percent of available capacity was being used. Last year at this time, these reservoirs were storing 1.2 million acre-feet of water.

On February 1 combined storage in Lakes Powell, Mead, Mohave and Havasu was about 37.7 million acre-feet or 99 percent of average. 70 percent of available capacity was in use.

RUNOFF - Seasonal runoff from selected South Coast streams totaled 3.2 thousand acre-feet which is 17 percent of average. Runoff from these streams during January totaled 2.3 thousand acre-feet or 29 percent of average. Seasonal runoff from these streams last year was 14 percent of average

COLORADO - The February 1 snowpack in the Upper Colorado River basin according to the U.S. Soil Conservation Service reports was 75 percent of average and ranges from 100 percent in the San Juan River Basin to 60 percent in the Green River Basin.

The April through July inflow to Lake Powell is forecast to be 5.0 million acre-feet which is 62 percent of normal.

CENTRAL VALLEY PROJECT

Water year forecasts for runoff into major CVP storage reservoirs range from 16 percent to 50 percent of average. CVP storage on September 30, 1990 was 4.0 million acre-feet.

As of January 31, 1991 storage had decreased to 3.8 million acre-feet, which is about 51 percent of normal for this date. The water supply outlook for the CVP is much worse than it was one year ago. Not only is storage about 2.0 million acre-feet lower than it was on February 1, 1990 but forecasts for CVP reservoirs are down by 1.3 million acre-feet compared to one year ago. The Bureau of Reclamation will advise its water customers by February 14th as to the availability of water deliveries in 1991.

STATE WATER PROJECT

State Water Project storage for this time of year is at a record low. Conservation storage (Oroville plus the State share of San Luis) reached 884 thousand acre-feet (TAF), or only 18 percent full. In addition, there is 250 TAF in ground water conservation storage.

Because of the extreme dryness of this season, on February 4, 1991, the SWP deferred delivery of entitlement water to agricultural water users. The situation is under review pending possible water purchases or better future runoff. The February 1, 1991 forecasted Oroville inflow, assuming normal future precipitation, is 1.54 million acre-feet, 32 percent of average. Based on this supply for the remainder of the year, the SWP could deliver about 35 percent of municipal and industrial water requests.

MAJOR WATER DISTRIBUTION PROJECTS

RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD OF RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AS OF JANUARY 31 1990 1,000 AF	1991 1,000 AF	PERCENT AVERAGE
STATE WATER PROJECT					
Oroville	3,540	2,487	1,896	921	37
San Luis SWP	1,060	900	790	66	7
Lake Del Valle	77	30	29	31	102
Silverwood	73	64	57	71	111
Pyramid Lake	171	162	162	160	99
Castaic Lake	324	243	261	195	80
Perris Reservoir	132	110	106	118	108
CENTRAL VALLEY PROJECT					
Clair Engle Lake	2,450	1,853	1,315	952	51
Shasta Lake	4,550	3,244	2,317	1,564	48
Whiskeytown	241	208	206	184	89
Folsom	1,010	547	340	155	28
New Melones	2,420	1,559	777	373	24
Millerton Lake	521	309	183	192	62
San Luis CVP	970	740	765	556	75
COLORADO RIVER PROJECT					
Lake Mead	26,300	19,706	21,663	20,061	102
Lake Powell	25,000	16,331	18,514	15,438	95
Lake Mohave	1,810	1,587	1,761	1,692	107
Lake Havasu	619	538	543	552	102
EAST BAY MUNICIPAL UTILITY DISTRICT					
Pardee	210	176	186	144	82
Camanche	432	253	189	144	57
East Bay (4 reservoirs)	151	122	123	119	98
CITY & COUNTY OF SAN FRANCISCO					
Hetch Hetchy	360	146	113	33	23
Cherry Lake	269	105	129	25	24
Lake Eleanor	28	9	2	0	3
South Bay (4 reservoirs)	223	159	123	85	53
CITY OF LOS ANGELES (DWP)					
Crowley Lake (Long Valley Reservoir)	183	127	86	99	78
Grant Lake	48	24	22	11	46
Other Aqueduct Storage (6 reservoirs)	95	63	51	71	113

DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
TELEMETERED SNOW WATER EQUIVALENTS - FEBRUARY 1, 1991

BASIN NAME / STATION NAME	AGENCY	ELEV FEET	APR 1 AVG	TODAY	INCHES OF WATER EQUIVALENT PERCENT OF APR 1	24 HRS AGO	1 WEEK AGO
TRINITY RIVER							
PETERSON FLAT	USBR	7150	33.0	.0	0%	.0	.0
RED ROCK MOUNTAIN	USBR	6700	44.0	4.2	10%	4.2	7.5
BONANZA KING	USBR	6450	40.5	2.0	5%	2.0	2.8
SHIMMY LAKE	USBR	6200	49.9	3.2	6%	2.6	5.2
MIDDLE BOULDER #3	USBR	6200	27.1	5.2	19%	5.9	4.6
HIGHLAND LAKES	USBR	6030	34.0	2.5	7%	2.5	3.1
SCOTTS MOUNTAIN	USBR	5900	27.0	.0	0%	.0	.0
MUMBO BASIN	USBR	5700	25.8	2.4	9%	2.3	2.9
BIG FLAT	USBR	5100	20.0	4.1	20%	4.2	2.6
SACRAMENTO RIVER							
CEDAR PASS	SCS	7100	18.1	3.0	17%	2.7	3.2
BLACKS MOUNTAIN	DWR	7286	8.6	.0	0%	.0	.0
SAND FLAT	USBR	6750	42.4	2.6	6%	2.6	2.6
MEDICINE LAKE	USBR	6700	32.7	2.3	7%	2.3	2.3
ADIN MOUNTAIN	SCS	6350	13.6	3.1	23%	3.3	4.0
SNOW MOUNTAIN	USBR	5950	27.0	.0	0%	.0	.0
SLATE CREEK	USBR	5600	30.0	.0	0%	.0	----
STOUTS MEADOW	USBR	5400	42.5	3.7	9%	3.5	2.6
FEATHER RIVER							
KETTLEROCK	DWR	7300	25.5	3.2	13%	3.7	3.2
GRIZZLY	DWR	6900	29.7	2.3	8%	2.2	2.3
PILOT PEAK	DWR	6800	52.6	1.8	3%	1.8	1.7
GOLD LAKE	DWR	6750	36.5	6.5	18%	6.4	6.5
HUMBUG	DWR	6500	28.0	4.7	17%	4.3	4.4
RATTLESNAKE	DWR	6100	14.0	1.8	13%	1.7	2.0
BUCKS LAKE	DWR	5750	44.7	6.8	15%	6.8	8.0
FOUR TREES	DWR	5150	20.0	3.8	19%	3.8	4.2
YUBA & AMERICAN RIV							
LAKE LOIS	DWR	8800	----	1.2	----	1.2	1.3
SCHNEIDERS	SMUD	8750	34.5	----	----	----	----
CAPLES LAKE COURSE	USBR	7800	30.9	4.4	14%	4.4	4.6
ALPHA	SMUD	7600	35.9	----	----	----	4.1
FORNI RIDGE	USBR	7600	37.0	3.5	10%	3.5	3.5
SILVER LAKE	USBR	7100	22.7	3.7	16%	3.7	3.7
CENT SIERRA SNOW LAB	USFS	6950	33.6	3.8	11%	3.8	4.2
HUYSINK	USBR	6600	42.6	2.4	6%	2.4	2.4
VAN VLECK	SMUD	6700	35.9	----	----	----	5.3
ROBBS SADDLE	SMUD	5900	21.4	----	----	----	4.4
GREEK STORE	USBR	5600	21.0	6.3	30%	6.3	6.3
BLUE CANYON	USBR	5280	9.0	.0	0%	.0	.0
ROBBS POWERHOUSE	SMUD	5150	5.2	----	----	----	.5
MOKEL. & STANIS. RIV							
DEADMAN CREEK	USBR	9250	37.2	1.8	5%	1.9	1.9
HIGHLAND MEADOW	USBR	8800	47.9	4.3	9%	4.3	4.3
GIANELLI MEADOW	USBR	8350	55.5	5.7	10%	5.7	5.7
LOWER RELIEF VALLEY	DWR	8100	41.2	4.0e	10%	3.4	3.2
BLUE LAKES	SCS	8000	33.1	3.6	11%	3.6	3.6
MUD LAKE	SMUD	7900	44.9	----	----	----	7.3
STANISLAUS MEADOW	USBR	7750	47.5	3.5	7%	3.5	4.2
BLOODS CREEK	USBR	7200	35.5	4.1	12%	4.1	4.1
BLACK SPRINGS	USBR	6500	32.0	3.5	11%	3.5	3.5
TUOLUMNE & MERCED R.							
DANA MEADOWS	DWR	9800	27.7	3.2	12%	3.0	3.2
SLIDE CANYON	DWR	9200	----	6.4	----	5.9	6.0
SNOW FLAT	DWR	8700	44.1	5.2	12%	5.2	6.5
TUOLUMNE MEADOWS	DWR	8600	22.6	.0	0%	.0	.0
HORSE MEADOW	DWR	8400	48.6	3.0	6%	3.0	3.6
OSTRANDER LAKE	DWR	8200	34.8	3.9	11%	3.9	4.6
PARADISE	DWR	7650	----	----	----	----	----
GIN FLAT	DWR	7050	34.2	4.2	12%	4.2	4.2
LOWER KIBBIE	DWR	6600	27.4	2.8	10%	2.8	3.4
SAN JOAQUIN RIVER							
VOLCANIC KNOB	USBR	10100	30.1	2.0	7%	2.0	2.0
AGNEW PASS	USBR	9450	32.3	1.3	4%	1.3	1.3
KAISER POINT	USBR	9200	37.8	2.2	6%	2.2	2.0
GREEN MOUNTAIN	USBR	7900	30.8	4.1	13%	4.1	4.1
TAMARACK SUMMIT	USBR	7600	30.5	4.9	16%	4.9	4.9

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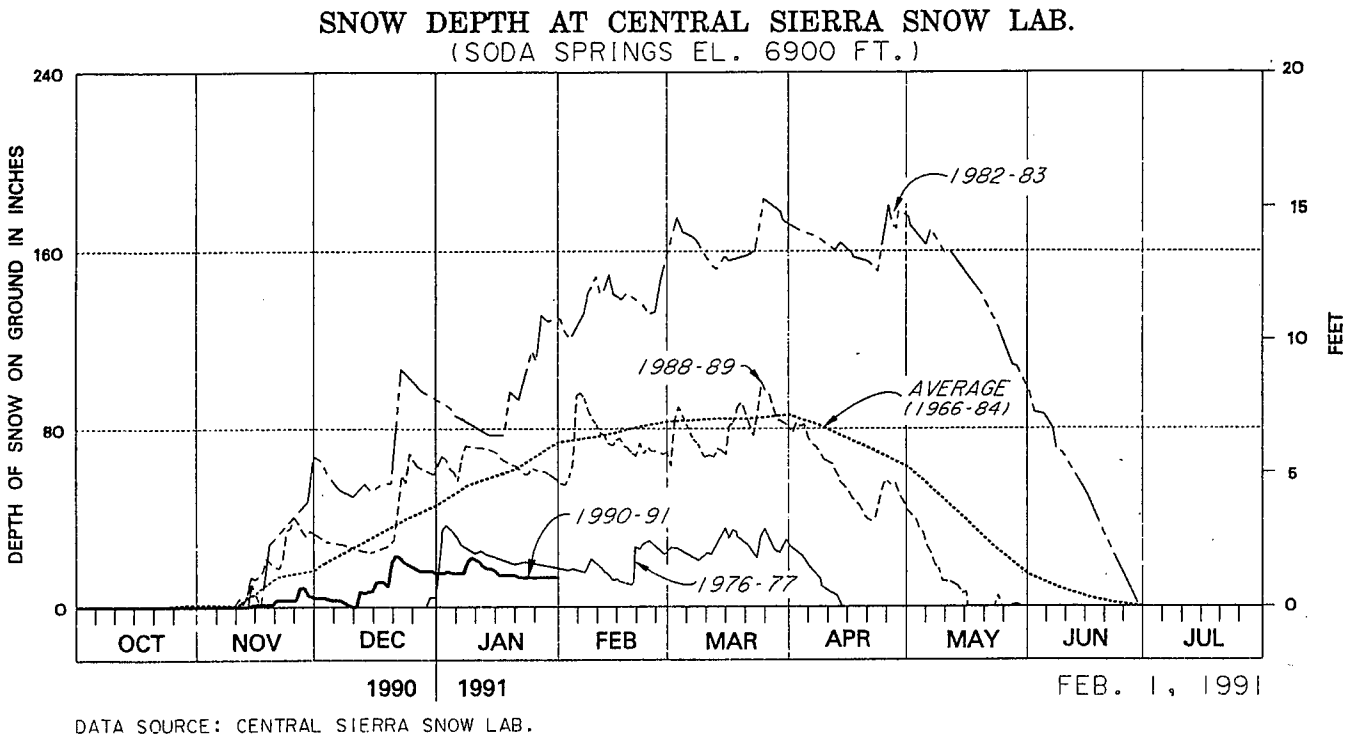
BASIN NAME / STATION NAME	AGENCY	ELEV FEET	APR 1 AVG	TODAY	INCHES OF WATER EQUIVALENT PERCENT OF APR 1	24 HRS AGO	1 WEEK AGO
CHILKOOT MEADOW	USBR	7150	38.0	6.3	17%	6.3	6.3
HUNTINGTON LAKE	USBR	7000	20.1	4.7	23%	4.7	4.7
GRAVEYARD MEADOW	USBR	6900	18.8	2.0	10%	1.8	3.1
POISON RIDGE	USBR	6900	28.9	5.7	20%	6.1	6.1
KINGS RIVER							
BISHOP PASS	DWR	11200	----	.0	----	.0	1.3
CHARLOTTE LAKE	DWR	10400	----	1.4	----	1.3	1.3
STATE LAKES	USCE	10400	29.0	3.2	11%	3.2	3.1
MITCHELL MEADOW	USCE	10375	32.9	4.8	15%	4.8	4.9
BLACKCAP BASIN	USBR	10300	34.3	.0	0%	.0	.0
UPPER BURNT CORRAL	DWR	9700	34.6	5.2	15%	4.6	4.6
WEST WOODCHUCK MDW	USCE	9100	32.8	1.9	6%	1.9	2.6
BIG MEADOWS	DWR	7600	25.9	3.4	13%	3.4	3.1
KAWEAH & TULE RIVERS							
QUAKING ASPEN	DWR	7200	21.0	5.5	26%	5.5	5.6
GIANT FOREST	USCE	6400	10.0	.0	0%	.0	1.4
KERN RIVER							
UPPER TYNDALL CREEK	USCE	11500	27.7	.0	0%	.0	.0
CRABTREE	DWR	10700	19.8	.0	0%	.0	.0
CHAGOOPA PLATEAU	DWR	10300	21.8	2.0	9%	2.0	2.0
PASCOES	USCE	9150	24.9	6.1	24%	6.1	6.1
TUNNEL	DWR	8950	15.6	1.6	10%	1.4	1.6
WET MEADOW	USCE	8900	30.3	6.1	20%	6.1	6.1
CASA VIEJA MDW	DWR	8400	20.9	2.0	9%	2.0	2.0
BEACH MEADOW	DWR	7650	11.0	.0	0%	.0	1.1
SURPRISE VALLEY AREA							
DISMAL SWAMP	SCS	7050	29.2	8.6	29%	8.5	8.3
TRUCKEE RIVER							
MOUNT ROSE SKI AREA	SCS	8850	38.5	3.2	8%	3.2	3.3
INDEPENDENCE LAKE	SCS	8450	41.4	3.0	7%	3.0	3.1
BIG MEADOWS	SCS	8700	25.7	2.4	9%	2.4	2.5
INDEPENDENCE CAMP	SCS	6500	21.8	2.4	11%	2.5	2.7
INDEPENDENCE CREEK	SCS	6500	12.7	2.3	18%	2.2	2.3
LAKE TAHOE BASIN							
HEAVENLY VALLEY	SCS	8800	28.1	.5	2%	.5	.7
HAGANS MEADOW	SCS	8000	16.5	1.9	12%	1.9	2.0
MARLETTE LAKE	SCS	8000	21.1	3.6	17%	3.5	3.6
ECHO PEAK	SCS	7800	39.5	5.6	14%	5.5	5.6
RUBICON NO. 2	SCS	7500	29.1	3.0	10%	3.1	3.1
WARD CREEK NO. 3	SCS	6750	39.4	4.6	12%	4.7	5.0
FALLEN LEAF LAKE	SCS	6300	7.0	1.4	20%	1.4	1.5
CARSON RIVER							
EBBETTS PASS	SCS	8700	38.8	3.9	10%	3.9	3.9
POISON FLAT	SCS	6900	16.2	5.7	35%	6.1	6.1
WALKER RIVER							
VIRGINIA LAKES RIDGE	SCS	9200	20.3	1.0	5%	1.0	1.1
LOBDELL LAKE	SCS	9200	17.3	2.6	15%	2.6	2.7
SONORA PASS BRIDGE	SCS	8750	26.0	2.9	11%	2.6	2.3
LEAVITT MEADOWS	SCS	7200	8.0	3.5	44%	3.9	4.3
OWENS RIVER/MONO LK.							
GEM PASS	LADWP	10750	31.7	1.3	4%	.0	1.3
SAWMILL MEADOW	DWR	10300	19.4	1.3	7%	1.3	1.3
COTTONWOOD LAKES	LADWP	10200	11.6	2.0	17%	1.8	1.7
BIG PINE #3	LADWP	9800	17.9	.0	0%	.0	.0
SOUTH LAKE	LADWP	9600	16.0	1.4	9%	1.4	1.4
MAMMOTH PASS (RP)	USBR	9500	42.4	5.1	12%	5.1	5.1
ROCK CREEK	LADWP	8200	----	1.2	----	1.2	1.2

NORMAL SNOWPACK ACCUMULATION EXPRESSED AS A PERCENT OF APRIL 1ST AVERAGE

AREA	JANUARY	FEBRUARY	MARCH	APRIL	MAY
CENTRAL VALLEY NORTH	45	70	90	100	75
CENTRAL VALLEY SOUTH	45	65	85	100	80
NORTH COAST	40	60	85	100	80



********SNOW LINES**********

FALL REPORT - Preparation of the annual water year data summary was unavoidably delayed this year but data validation is nearly complete and it should be in the mail soon.

NEW BULLETIN 120 FORMAT - The new bulletin format presents a more logical organization of the material. The forecasts are now grouped together at the front of the bulletin and most of the backup material is presented in the back part. Let us know if you have strong pro or con feelings about the arrangement.

LOS ANGELES IMPOSES WATER RATIONING - The City of Los Angeles, which formerly got about 10 percent of its water supply from the Metropolitan Water District(MWD), became increasingly dependent on MWD as the drought continues. By mid July MWD was furnishing 60 percent of the City's supply. MWD's supply is, of course, finite and, as a result, the City announced water rationing in January.

SNOWPACK- Snow data is a major index of spring and summer runoff from Sierra Nevada watersheds. April 1 data historically reflects the magnitude of the snowpack at or near the maximum seasonal accumulation. Averages are based on April 1 data for the period 1941-1990 (50 years, except for data sites established after 1941.)

PRECIPITATION- Averages are based on the period 1931-1980 (50 years, except for data sites established after 1931.)

RUNOFF AND FORECASTS- Runoff data and runoff forecasts are shown as unimpaired values. Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Forecast of runoff assumes median conditions subsequent to the date of forecast.

Runoff probability ranges are statistically derived from historical data. The 80 percent probability range is comprised of the 90 percent exceedence level value and the 10 percent exceedence level value. This means that actual runoff should fall within the stated limits eight times out of ten.

Runoff averages for most streams are based on the 50 year period (1936-1985). For more details, contact California Cooperative Snow Surveys, P.O. Box 942836, Sacramento, CA 94236-0001, (916) 445-2196.

On the Front Cover
Winter hunger overcomes a bird's normal fear of humans

Photo by Dave Hart

FIRST CLASS